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THE UTILITY OF NON-USE VALUES IN NATURAL RESOURCE DAMAGE ASSESSMENTS

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Abstract: Non-use values are frequently underestimated or ignored in natural resource damage assessments, despite the fact that there are significant social and economic benefits to assessing costs for lost non-use values. The regulations of the Department of the Interior, which bind some CERCLA trustees, create unusual barriers to the consideration of non-use values and are potentially vulnerable to a reasonableness challenge under *Chevron v. NRDC*. Trustees who are not bound by the DOI regulations should consider calculating and assessing non-use values because of the economic and social benefits of recognizing non-economic injury caused by the destruction or degradation of natural resources.

Introduction

Maine's Penobscot River runs 240 miles from Penobscot Lake on the Canadian border to Bucksport on the state's Atlantic coast. The river forms the artery of an 8570-square-mile drainage basin, making it the second-largest river system in New England.[1] The Penobscot River Valley has been the home and cultural center of the Penobscot Indian Nation for thousands of years,[2] and the river has played an in-

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[1] Maine Rivers, *Penobscot Watershed*, *at* http://www.mainerivers.org/penobscot.html (last visited Mar. 28, 2005); Penobscot Partners, *Watershed Background & History of the River*, *at* http://www.penobscotriver.org/river.htm (last visited Mar. 28, 2005).

[2] Paul Bisulca, *Penobscot: A People and Their River*, Conservation Matters, Summer 1996, *available at* http://www.penobscotnation.org/articles/bisulca.htm (last visited Mar. 28, 2005); Office of the Governor & Council, Penobscot Indian Nation, Statement of Barry Dana, Chief of the Penobscot Nation (Oct. 6, 2003) [hereinafter Statement of Barry Dana], *at* http://www.penobscotriver.org/press_packet/Penobscot%20Nation%20statement.pdf (last visited Mar. 28, 2005).

tegral part in the development of Maine's economy—from fishing, timber, and hydroelectric power industries to river rafting.[3] In part because of its role in economic development, however, the Penobscot River today suffers from serious pollution problems.[4]

Beginning in 1967, a chemical plant in Orrington, Maine, continuously discharged wastewater containing significant amounts of mercury into the Penobscot River and emitted still larger quantities of mercury through airborne emissions.[5] As a result of this and other sources, mercury contamination levels in the lower Penobscot River far exceed "safe" levels, and are among the highest in Maine (which itself has high rates of mercury contamination compared with other states in the nation).[6] Because of the unique way mercury interacts with its environment, it multiplies in toxicity as it moves up the food chain, and it remains in the environment for decades after the release of pollutants has ceased.[7] The Penobscot River also suffers from contaminants other than mercury, such as dioxins[8] and tar deposits.[9]

Citizens' use of the river is severely limited by the contamination.[10] The State of Maine Bureau of Health has issued a standing fish consumption advisory cautioning citizens to limit their consumption of fish from the lower half of the Penobscot River to one to two meals per month.[11] Women who are nursing, pregnant, or who may become

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[3] *See* Bisulca, *supra* note 2; Maine Rivers, *supra* note 1.

[4] *See generally* Bisulca, *supra* note 2 (discussing the nature of the pollution problems arising from the development of hydroelectric power plants and paper manufacturing mills).

[5] Me. People's Alliance v. HoltraChem Mfg. Co., 211 F. Supp. 2d 237, 242 (D. Me. 2002).

[6] *Id.* at 248.

[7] *Id.* at 244–45, 251.

[8] *See* Bisulca, *supra* note 2 (asserting that "dioxin is the most potent carcinogen known to man"); Interagency Working Group on Dioxin, *Questions and Answers About Dioxins* (2004) (finding that chlorine bleaching of pulp and paper can create dioxins), *at* http://www.cfsan.fda.gov/~lrd/dioxinqa.html#g1 (last updated Oct. 29, 2004); Natural Res. Council of Me., *Maine's Dioxin Problem: The Paper Mill Connection* (noting the health hazards of dioxins, especially those found in the Penobscot River), *at* http://www.maineenvironment.org/cfree/dioxin_update.htm (last updated Feb. 25, 2005).

[9] *See generally* City of Bangor v. Citizens Communication Co., No. Civ. 02-183-B-S, 2004 WL 483201 (D. Me. Mar. 11, 2004) (litigating the cleanup costs associated with a tar slide in the Penobscot River).

[10] *See Me. People's Alliance*, 211 F. Supp. 2d at 253.

[11] Me. Bureau of Health, *Warning About Eating Freshwater Fish* (Aug. 29, 2000), *available at* http://mainegov-images.informe.org/dhhs/ehu/fish/2KFCA.pdf. Inorganic mercury becomes methylmercury after interacting with microorganisms in the river's sediments. *See Me. People's Alliance*, 211 F. Supp. 2d at 244. Methylmercury affects the development of the central nervous system, but also causes damage to fully-developed organisms, including humans, such as cardiovascular problems resulting in heart disease and stroke. *Id.* at 245.

pregnant, and children under the age of eight are warned not to eat any inland freshwater fish because of mercury's effect on the developing brain.[12] Some individuals refrain from swimming or boating in the river because of concerns about the health effects of exposure to these pollutants.[13]

The contamination causes other losses, too. One citizen has testified that she felt "robbed" of her right to use the Penobscot River and Bay as a result of the mercury contamination.[14] The inability to fully exercise its fishing rights in the Penobscot River affects the economic well-being of the Penobscot Indian Nation, but it also stresses the Nation's culture and community, centered as they are on the river itself.[15] Wildlife enthusiasts are harmed as a result of pollution's destructive effects on the reproductive and survival capacities of the river's flora and fauna.[16] These very real but non-economic losses can be referred to as non-use values.

The term "non-use value" describes the values attributable to the simple knowledge that something exists ("existence value"), the potential for its use ("option value"), or the expectation that it will be of value to future generations ("bequest value").[17] Losses may be incurred in one or more of these categories of non-use values when a natural resource is damaged by pollution.[18] In the case of a polluted river, preservationists may have lost peace of mind that the natural environment was being protected; the loss of a community resource or source of pride may have had a detrimental effect on the cohesion of the community; and future generations may be prevented from inheriting the river's environmental assets.[19] Both use and non-use val-

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[12] *See* ENVTL. HEALTH UNIT., *supra* note 11.

[13] *Me. People's Alliance*, 211 F. Supp. 2d at 253.

[14] *Id.*

[15] *See* Bisulca, *supra* note 2; Statement of Barry Dana, *supra* note 2 ("We are inextricably tied to the Penobscot River through a cultural, physical and spiritual relationship that runs in our veins as the original inhabitants of this region.").

[16] *See* Me. People's Alliance v. HoltraChem Mfg. Co., No. 00-CV-69, 2001 WL 1704911, at *3 (D. Me. Jan. 8, 2001).

[17] *See* Frank B. Cross, *Natural Resource Damage Valuation*, 42 VAND. L. REV. 269, 285–88 (1989) (defining and discussing these non-use values (but adopting slightly different formulations, including usage of the term "intertemporal value" in lieu of "bequest value")); *see also* Cass R. Sunstein, *Incommensurability and Valuation in Law*, 92 MICH. L. REV. 779, 840 (1994) ("In particular, people may believe that a species or a pristine area has intrinsic rather than instrumental value.").

[18] *See, e.g.*, Cross, *supra* note 17, at 289 (hypothesizing as to the loss of existence value in the context of hazardous substance release).

[19] *See id.* at 286–88 (making a similar analogy using the Grand Canyon and endangered species).

ues are real, yet non-use values are frequently underestimated or ignored in determinations of how much polluters should pay for damages inflicted upon natural resources.[20]

When it passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA),[21] Congress sought to hold polluters liable for the injury, destruction, or loss of natural resources resulting from the release of hazardous substances into the environment.[22] Congress and scholars further have recognized that the real losses caused by pollution typically exceed lost use or market values,[23] and have expressed skepticism as to "the ability of human beings to measure the true 'value' of a natural resource."[24] This Article argues that consideration of interim non-use values—those non-use values lost in the period between the pollution and remediation or recovery of a natural resource—is an effective method for CERCLA trustees to address these concerns regarding proper valuation and to thereby advance the public interest.

Part I of the Article briefly describes the relationship between CERCLA and various sections of the Department of the Interior regulations. Part II argues that the regulations' treatment of non-use values is subject to challenge for reasonableness under step two of the test developed in *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*[25] Finally, Part III discusses the benefits of including non-use values in natural resource damage assessments and offers some considerations for trustees to use in determining the utility of calculating lost interim non-use values in a given case.

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[20] *See id.* at 297 (stating that "there is no consensus over the legitimacy of considering intrinsic, or even existence, value in measuring natural resource damages").

[21] Pub. L. No. 96-510, 94 Stat. 2767 (1980) (codified at 42 U.S.C. §§ 9601–9675 (2000)). CERCLA, commonly known as the Superfund law, was amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. No. 99-499, 100 Stat. 1613 (1986).

[22] CERCLA § 107(a)(4)(C), 42 U.S.C. § 9607(a)(4)(C) (2000).

[23] The *Ohio v. DOI* court held that damages could not be limited to use value only. Ohio v. U.S. Dep't of the Interior, 880 F.2d 432, 444 (D.C. Cir. 1989). The court also noted that natural resources are not "fungible," private markets may fail to reflect the value of natural resources, and "use value" fails to capture the value of losses incurred as a result of pollution. *See id.* at 456–57 & n.40. For a brief summary of *Ohio v. DOI*, see Charles B. Anderson, *Damage to Natural Resources and the Costs of Restoration*, 72 TUL. L. REV. 417, 441–45 (1997).

[24] *Ohio v. DOI*, 880 F.2d at 457; *see also id.* at 457 n.40 (discussing the concerns of scholars).

[25] 467 U.S. 837 (1984).

I. The Current DOI Regulations

A. *Overview*

CERCLA requires the promulgation of damage determination procedures to establish the amount of money to be sought in compensation for injuries to natural resources.[26] These procedures are commonly referred to as natural resource damage assessments (NRDAs), and regulations setting forth such procedures have been promulgated by the Department of the Interior (DOI). Federal and state agencies serve as trustees to oversee the NRDA process described in these regulations.[27] However, due to an express regulatory provision declaring the procedures "not mandatory," trustees are not bound to follow them unless so required by agency guidance or state law.[28] Some trustees use the DOI regulations to take advantage of the "rebuttable presumption" afforded by the statute, which shifts to potentially responsible parties the burden of proof that the trustees' damage assessment is in error.[29] Other trustees conclude that the benefit of the presumption is outweighed by the difficulty of using the regulations[30] or the resulting undervaluation of the losses.[31] and calculate damages under CERCLA using their own guidelines.[32]

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[26] CERCLA § 301(c)(1)–(2), 42 U.S.C. § 9651(c)(1)–(2) (2000).

[27] *See* 43 C.F.R. § 11.14(rr) (2004) (defining "trustee" as "any Federal natural resources management agency designated in the NCP and any State agency designated by the Governor of each state" pursuant to pertinent CERCLA provisions).

[28] *See* 43 C.F.R. § 11.10 (2004) ("The assessment procedures set forth in this part are not mandatory."); United States v. Asarco Inc., No. CV 96-0122-N-EJL, 1998 WL 1799392, at *2 (D. Idaho Mar. 31, 1998) ("According to the applicable regulations, the assessment procedures for determining natural resource damages are not mandatory.").

[29] *See* CERCLA § 107(f)(2)(C), 42 U.S.C. § 9607(f)(2)(C) (2000); Ohio v. United States Dep't of the Interior, 880 F.2d at 439; *Asarco*, 1998 WL 1799392, at *2; Montauk Oil Transp. Corp. v. S.S. Mut. Underwriting Ass'n, 859 F. Supp. 669, 680 (S.D.N.Y. 1994).

[30] *See* Robert J. McManus, *Why the* Ohio *Case Shouldn't Matter*, 34 Nat. Resources J. 109, 109, 110 (1994) (stating that "the entire NRDA process is overly complicated, virtually impossible to administer and of uncertain utility" and that the provisions "are so exquisitivelv complex that their implementation is simply not worth the bother").

[31] *See, e.g.*, N.Y. State Dep't of Envtl. Conservation, *Natural Resource Damages: Enforcement Guidance Memorandum* (May 17, 1989) (noting the "low dollar value the regulations would assign to natural resource damages"), *at* http://www.dec.state.ny.us/website/ogc/egm/nrd.html.

[32] For example, one state trustee describes its view as follows:

> It appears, however, that the limited value of the 'rebuttable presumption' is outweighed by many disadvantages inherent in the structure of the regulations, especially the low dollar value the regulations would assign to natural resource damages. More comprehensively, there are inherent limitations in the assessment methodologies, both scientific and economic, and significant procedural constraints in the regulations.

DOI's current regulations,[33] promulgated pursuant to section 301(c)(2)(B) of CERCLA, were adopted following the Supreme Court's decision in *Ohio v. U.S. Department of the Interior*, which held invalid a regulation limiting recovery to the lesser of restoration cost or lost use value of a resource.[34] The current regulations set forth two types of procedures for performing NRDAs: the first involves the use of a standard computer model to assess damages that result from chemical or oil discharge in coastal environments (Type A assessment),[35] and the second provides "alternative protocols for conducting assessments in individual cases" (Type B assessment).[36] "The purpose of the [T]ype B assessment is to provide alternative methodologies for conducting natural resource damage assessments" in more complex, site-specific cases that require an individualized approach.[37]

The DOI regulations prescribe the procedure for trustees to follow at each stage of a case.[38] Before initiating a CERCLA action, a trustee conducts a "pre-assessment screen" to determine whether there is a reasonable probability that a CERCLA claim would be successful.[39] If appropriate, the trustee then develops an "assessment plan" describing how the trustee expects to determine the monetary value of the injury caused by the pollution,[40] and indicates whether it intends to conduct a Type A assessment or a Type B assessment.[41] A Type B assessment will commence if the standard Type A procedures are unavailable, or if the

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> In short, while the Department of Interior's regulations provide a useful starting point and helpful guidance for conducting natural resource damage assessments, strict adherence to them in order to gain the value of the 'rebuttable presumption' is unwarranted.

Id.

[33] The current regulations were promulgated in 1994. They are currently codified at 43 C.F.R. §§ 11.10–.93 (2004). *Compare* Natural Resource Damage Assessments, 56 Fed. Reg. 19,752 (proposed April 29, 1991) (to be codified at 43 C.F.R. pt. 11), *and* Natural Resource Damage Assessments, 51 Fed. Reg. 27,674 (Aug. 1, 1986) (to be codified at 43 C.F.R. pt. 11), *with* Natural Resource Damage Assessments, 59 Fed. Reg. 14,262 (Mar. 25, 1994) (to be codified at 43 C.F.R. pt. 11).

[34] 880 F.2d 432, 459 (D.C. Cir. 1989). Unsuccessful procedural and substantive challenges to the current DOI regulations were made in *Kennecott Utah Copper Corp. v. United States Department of the Interior*, 88 F.3d 1191 (D.C. Cir. 1996).

[35] EPA, *Natural Resource Damage Assessment*, *at* http://www.epa.gov/superfund/programs/nrd/nrda2.htm (last updated Sep. 23, 2003).

[36] CERCLA § 301(c)(2), 42 U.S.C. § 9651(c)(2) (2000).

[37] 43 C.F.R. § 11.60(a) (2004); *see also* EPA, *supra* note 35.

[38] *See* 43 C.F.R. §§ 11.10–.93.

[39] *See id.* §§ 11.23–.25.

[40] *See id.* §§ 11.30–.32.

[41] *See id.* §§ 11.34–.36.

trustee otherwise elects a Type B assessment over a Type A assessment.[42] After completing the assessment, the trustee prepares a report describing the assessment and presents a demand to each potentially responsible party for its share of the damages,[43] filing suit if appropriate. If the trustee is successful in recovering funds, it develops a plan to restore the injured natural resources.[44]

B. *Type B Assessments and Non-Use Values*

Type B assessments generally consist of three steps: injury determination, injury quantification, and damage determination.[45] In the damage determination phase, the trustee determines the amount of money that will be sought as compensation for injury to natural resources.[46] For the Type B damage determination phase, the regulations state that

> [t]he measure of damages is the cost of restoration, rehabilitation, replacement, and/or acquisition of the equivalent of the injured natural resources and the services those resources provide. Damages may also include, at the discretion of the authorized official, the *compensable value* of all or a portion of the services lost to the public for the time period from the discharge or release until the attainment of the restoration, rehabilitation, replacement, and/or acquisition of equivalent of the resources and their services to baseline.[47]

While the above language seems to focus exclusively on lost use values, the regulations define "compensable value" as follows:

> Compensable value is the amount of money required to compensate the public for the loss in services provided by the injured resources between the time of the discharge or release and the time the resources and the services those resources provided are fully returned to their baseline conditions. The compensable value includes the value of lost pub-

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[42] Officials decide between pursuing Type A and Type B procedures pursuant to the guidelines in 43 C.F.R. § 11.35. *See also id.* § 11.36 (describing situations in which both Type A and Type B procedures may be used).

[43] *See* 43 C.F.R. §§ 11.90–.91 (2004).

[44] *See id.* §§ 11.91–.93.

[45] *Id.* § 11.60(b).

[46] *See id.* § 11.80(b).

[47] *Id.* (emphasis added).

> lic use of the services provided by the injured resources, plus lost *nonuse values* such as *existence* and *bequest* values. Compensable value is measured by changes in consumer surplus, economic rent, and any fees or other payments collectable . . . .[48]

Thus, the definition of "compensable value", and hence the measure of damages, appears to include both use value and non-use value.[49] Crucially, however, the regulations then proceed to require that "[e]stimation of *option* and *existence* values shall be used only if the authorized official determines that *no use values* can be determined."[50]

II. As-Applied Challenges to the Regulations

A. *Challenges to Assessments Relying on the Regulatory Language*

The inclusion of "nonuse values such as existence and bequest values" in the definition of compensable value, coupled with a requirement that "option and existence values" can be used only if no use values can be determined, places trustees using the regulations in an awkward predicament with respect to including non-use values in damage assessments.[51] It will be an exceptionally rare case in which a natural resource has no use value whatsoever—nearly everything has some market value. The importance of non-use value is that it recognizes non-market based values, which coexist with market values.[52] Thus, the regulations appear to preclude trustees from considering option and existence values in almost every case, leaving only bequest value as a non-use value for proper consideration.[53] A reasonable rationale for this disparate treatment of different types of non-use values is elusive.

Based on this simultaneous inclusion and exclusion of certain non-use values, the DOI regulations may be susceptible to as-applied

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[48] *Id.* § 11.83(c)(1) (emphases added).

[49] Use value is defined as "the value of the resources to the public attributable to the direct use of the services provided by the natural resources." 43 C.F.R. § 11.83(c)(1)(i). Non-use value is defined as "the difference between compensable value and use value, as those terms are used in this section." *Id.* § 11.83(c)(1)(ii).

[50] *Id.* § 11.83(c)(1)(iii) (emphases added).

[51] *See id.*

[52] *See* Cross, *supra* note, 17 at 285–97 (describing different formulations of non-market based non-use values).

[53] *See* 43 C.F.R. § 11.83(c) (2004) (listing acceptable values and valuation methods used in cost estimation of injured or lost natural resources).

legal challenges.[54] Section 301(c)(2) of CERCLA provides that the "regulations . . . shall take into consideration factors including, but not limited to, replacement value, use value, and ability of the ecosystem or resource to recover."[55] This language certainly permits the inclusion of other factors; indeed it can be argued that section 301(c)(2)'s "not limited to" language actually requires that the DOI regulations include at least one other factor for consideration in making NRDAs under the regulations.[56] As seen above, DOI has included lost non-use values in the regulations as an additional factor for consideration in conducting damage assessments.[57]

A federal administrative agency's regulations may be challenged under the standard announced in *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*[58] Step one of the *Chevron* inquiry applies where the statutory meaning is unambiguous.[59] If a regulation violates the plain language of a statute, it will be invalidated under *Chevron* step

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[54] *See id.*

[55] CERCLA § 301(c)(2), 42 U.S.C. § 9651(c)(2) (2000).

[56] *See id.*; 43 C.F.R. §§ 11.80–.84 (2004). While "including, but not limited to" language is most commonly understood as permissive and not mandatory, it certainly can take on a mandatory meaning. Take, for example, the following hypothetical requirement from a university policy on the serving of alcoholic beverages: "Foods served shall not be limited to salty foods which increase thirst." In this context, "shall not be limited to" is clearly a clause indicating mandatory behavior. Thus, the "including, but not limited to" language in section 301(c)(2) could be a combination of two statutory requirements: (a) include these enumerated factors and (b) include other factors designed to advance the legislative goals of the statute. This construction may make particular sense in light of congressional statements of concern for proper valuation of lost natural resources. Whether or not one agrees with this analysis of the language of section 301(c)(2), that section clearly permits the inclusion of additional factors in the regulations; as such, the inclusion of non-use values in the regulations—and subsequent NRDAs—is subject to challenge under *Chevron* step two, as described below. *See infra* text accompanying notes 64–67.

[57] *See* 43 C.F.R. § 11.83(c)(1). If section 301(c)(2) is read to require inclusion of an additional factor, the necessary additional factor cannot be restoration value, which already must be considered. *See* CERCLA § 107(f)(1), 42 U.S.C. § 9607(f)(1) ("There shall be no double recovery under this chapter for natural resource damages, including the costs of damage assessment or restoration, rehabilitation, or acquisition for the same release and natural resource."). Under *Ohio v. DOI*, sections 301 and 107 of CERCLA should be read in conjunction when determining what Congress mandated be taken into consideration when measuring damages. *See* Ohio v. U.S. Dep't of the Interior, 880 F.2d 432, 446–47 (D.C. Cir. 1989) (stating that one cannot read section 107 while ignoring the existence of section 301). Under this construction, "restoration value" is added to the factors for consideration enumerated in section 301(c)(2). *See id.*

[58] 467 U.S. 837, 842–43 (1984).

[59] *Id.* (framing the question as "whether Congress has directly spoken to the precise question at issue").

one.[60] If the statutory meaning is ambiguous, then the regulation is evaluated for reasonableness under step two of the *Chevron* inquiry.[61]

Congress's "but not limited to" language does not unambiguously state *which* additional factor may (or must) be included in the regulation, nor to what extent that additional factor should be considered or used in assessing natural resource damages.[62] Here, DOI has chosen one additional factor to be considered—non-use values—which on its face seems sufficient to satisfy the statutory language of section 301(c)(2).[63] But how should these non-use values be considered, if at all?

In practice, these regulations are subject to an as-applied reasonableness challenge under *Chevron* step two, based on the perplexing treatment of non-use values that permits option and existence values to be included in damages only when no use values can be determined.[64] Although the regulations allow for consideration of "nonuse values such as existence and bequest values,"[65] the end result is that

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[60] *See id.*

[61] *Id.* at 843.

[62] *See* CERCLA § 301(c)(2), 42 U.S.C. § 9651(c)(2). Not only does section 301(c)(2) not indicate what the additional factor might be, the provision does not indicate whether an additional factor must be actually be *included* in the damage assessment. In other words, can the regulation allow a trustee to consider assessing the additional factor—here, non-use values—and then allow the trustee to decline to include it in the damage measure, or does the statute require that the regulation mandate consideration and inclusion of an additional factor in NRDAs performed using the regulations? On the one hand, the fact that section 107 of CERCLA provides that damages "shall not be limited by" the amounts that can be used to restore or replace the resources could mean only that trustees *can* charge more than the amounts necessary to restore or replace the resources, but it does not *require* them to do so. CERCLA and the *Ohio v. DOI* decision embrace the idea of maximizing the discretion of the trustee, and there may be a concern that trustees should not recover sums unsubstantiated by evidence. *See* 43 C.F.R. § 11.80(b) (2004) ("Damages may also include, at the discretion of the authorized official, the compensable value . . . ."); *see also* CERCLA § 107(f)(1), 42 U.S.C. § 9607(f)(1) (2000); *Ohio v. DOI*, 880 F.2d at 447–48. On the other hand, Congress, in passing CERCLA, evidenced a concern that humans cannot properly evaluate the true worth of natural resources, and would have wanted all factors, even if the value is minimal, to be included in the damage assessment. *See* Cross, *supra* note 17, at 284.

[63] The regulations would probably survive a facial challenge under *Chevron* step one because compensable value includes "nonuse values such as existence and bequest values." 43 C.F.R. § 11.83(c)(1). It is only in practice that non-use values will not be considered (both in improperly defining compensable value and by failing to address any non-use values once use values are determined). *See id.* § 11.83(c)(1)(iii).

[64] *See id.* § 11.83(c)(1)(iii). A finding or conclusion by a trustee based on this provision might also be considered arbitrary or capricious under the Administrative Procedure Act, especially if significant non-use values are ignored. *See* APA § 10(e), 5 U.S.C. § 706 (2000).

[65] 43 C.F.R. § 11.83(c)(1).

trustees following the regulations will virtually never consider option and existence values because some minimal use values will always be easily identifiable, and because no other additional factors are indicated in the regulations.[66] It seems an unreasonable construction of the statute to adopt regulations that welcome entrance of non-use values through the front door, in the definition of compensable value, only to immediately drive them out the back, by allowing estimation of non-use values only when use values are completely absent.[67]

B. *Challenges to Assessments Using Incomplete Regulatory Language*

A separate obstacle to a full recovery for natural resource damages is that some trustees do not even reach the point of deciding whether to consider non-use values, because they fail to recognize the complete definition of compensable value.[68] For example, some trustee assessment plans used by federal administrative agencies and state environmental agencies that ostensibly follow the regulations do not indicate that non-use values will be considered in the damage determination phase.[69] Rather, these plans define "compensable value" for

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[66] *See* Cross, *supra* note 17, at 284.

[67] The counterargument to this conclusion is equally unreasonable: one could conceptualize "option" and "existence" values as different from "bequest" value because option and existence values are things *I* enjoy, while bequest value is something I hope *others* will enjoy. Making this distinction, trustees could consider bequest value under 43 C.F.R. § 11.83(c)(1)(iii), even if use values are determined. Thus, bequest value would be the additional factor under CERCLA section 301(c)(2). However, some scholars consider existence value to be comprised of the subparts option value and bequest value and it is difficult to provide a rationale for why trustees would be allowed to estimate bequest value, but not existence or option values. *See* Cross, *supra* note 17, at 285–86.

[68] This would not withstand judicial review because the definition of compensable value would be "plainly erroneous" and "inconsistent" with the regulation's plain language. *See* Bowles v. Seminole Rock & Sand Co., 325 U.S. 410, 414 (1945) ("But the ultimate criterion is the administrative interpretation which becomes of controlling weight unless it is plainly erroneous or inconsistent with the regulation."); Albemarle Corp. v. Herman, 221 F.3d 782, 785 (5th Cir. 2000) ("[A]s is the case here, the Secretary's interpretation is *not* entitled to deference if it is unreasonable or contrary to the regulation's plain language.") (citing Martin v. Occupational Safety & Health Review Comm'n, 499 U.S. 144, 156–57 (1991)).

[69] *See, e.g.*, Mich. Dep't of Envtl. Quality et al., Stage I Assessment Plan: Kalamazoo River Environment Site § 6.1 (Nov. 2000) ("Compensable values for interim losses are 'the value of lost public use of services provided by the injured resources.'"), *available at* http://www.fws.gov/midwest/nrda/kalamazoo/report.pdf; U.S. Fish & Wildlife Serv., Lower Fox River/Green Bay NRDA Initial Restoration and Compensation Determination Plan § 2.1 (Sep. 14, 1998) (prepared by Hagler Bailly Servs.) ("*Compensable values* include 'the value of lost public use of the services provided by the injured resources.'"), *available at* http://www.fws.gov/midwest/nrda/rcdp.pdf; *see also* U.S. Dep't of the Interior & State of Ind., Assessment Plan for the Natural Resource

interim losses as "the value of lost public use of the services provided by the injured resources," deleting the remaining portion of the regulatory definition, "plus lost nonuse values such as existence and bequest values."[70]

While the DOI regulations make consideration and assessment of non-use values difficult, non-use values should not be dismissed out of hand at any stage of the NRDA process without a fair look at the potential benefits of including them in an assessment.

C. *Proposals*

Trustees that follow the DOI regulations should take notice of interim non-use values to the extent permitted by the regulations.[71] DOI, for its part, should amend the regulations to allow trustees to include lost non-use values in their calculations of damages under CERCLA

Damage Assessment of the Grand Calumet River, Indiana Harbor Ship Canal, Indiana Harbor, and Associated Lake Michigan Environments 46–49 (Oct. 1997) (prepared by Indus. Econ., Inc.) (finding only three areas where compensable value may be calculated: interim losses of habitats that provided "important services" to humans; interim losses of recreational opportunities; and interim losses representing increased costs of past or committed future public development projects), *available at* http://www.fws.gov/midwest/GrandCalumetRiver/gcraplan.pdf. *Contra* U.S. Fish & Wildlife Serv., Lower Fox River/Green Bay Natural Resource Damage Assessment Plan § 9.3.1 (Aug. 1996) (stating that "[c]ompensable values include 'the value of lost public use of the services provided by the injured resources, plus lost nonuse values such as existence and bequest values'"), *available at* http://www.fws.gov/midwest/nrda/assess.pdf. This plan proceeds to embrace the consideration of non-use values at length, first by quoting DOI regulation language and then further by adding its own formulation:

> *Nonuse values (or passive use values)* arise from the values individuals place on resources apart from their own readily identified and measured direct use. Nonuse values may include bequest values for the availability of resources for use by others now and in the future, and existence values for the protection of the resources even if they are never used [56 F.R. 19760].
>
> Additionally, option values to preserve the site for one's own *potential* future use and casual or indirect uses of natural resources, such as enjoying the site while driving or walking by or working near the site; and enjoying hearing about, reading about, or seeing photographs of the site may also be included in direct uses or passive uses depending on the study design.

Id.

[70] *See* 43 C.F.R. § 11.83(c)(1) (2004).

[71] *See* Miriam Montesinos, *It May Be Silly, But It's an Answer: The Need to Accept Contingent Valuation Methodology in Natural Resource Damage Assessments*, 26 Ecology L.Q. 48, 78 (1999) ("Federal courts, DOI and experts have agreed that nonuse values must be included and have provided for nonuse values to be part of NRD assessments."). However, state natural resource damage laws may expressly prohibit the use and recovery of non-use values. *See, e.g.*, Mich. Comp. Laws § 324.20104(2)–(3) (2003).

regardless of whether any lost use values can be determined,[72] particularly in light of the otherwise very conservative calculation procedures set forth in the regulations, which often result in severe underestimations of the cost of remediation.[73]

III. The Utility of Non-Use Values

As explained in the introduction, non-use value includes existence, option, and bequest value.[74] Existence value is the worth to people of knowing that a given natural resource is protected; option value is the value to people of retaining the option for future use; and bequest value comes from knowing that a natural resource will be available to future generations.[75] The literature on these non-use values abounds with discussion of the difficulty of calculating non-use values. But many of these articles lose sight of an administrative reality: CERCLA trustees, whose role it is to assess resource damages and pursue claims for recovery, have the autonomy to decide how, or even whether, to charge polluters for lost non-use values.

A. *Measuring Non-Use Values*

Because non-use values are inherently non-economic, perhaps the most common method of calculating such values involves asking individuals what dollar figure they would assign to a particular resource.[76] This type of study is termed a contingent valuation (CV) study. The *Ohio v. DOI* court upheld DOI's continued use of CV as a "best available procedure" in determining resource values under CERCLA.[77] The CV process "set[s] up hypothetical markets to elicit . . . [the] economic valuation of a natural resource," and is used when there are no adequate models of market behavior available to measure use or non-use values.[78]

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[72] Such amendment should not be problematic; the regulation must be reviewed and revised as appropriate every two years. CERCLA § 301(c)(3), 42 U.S.C. § 9651(c)(3) (2000).

[73] *See* N.Y. State Dep't of Envtl. Conservation, *supra* note 31.

[74] Cross, *supra* note 17, at 285–86.

[75] *Id.* at 285–86.

[76] *See id.* at 315, 320 n.267 (citing Alan Randall, *Total Economic Value as a Basis for Policy*, 116 Transactions Am. Fisheries Soc'y 325, 329 (1987) (declaring that contingent valuation "offers the only means of directly estimating the total value of nonmarketed environmental assets")).

[77] Ohio v. U.S. Dep't of the Interior, 880 F.2d 423, 478 (1989). However, reliance on CV studies may expose a NRDA to further as-applied challenges under *Chevron* step two.

[78] *See id.* at 475. Adequate models of market behavior that could be useful in measuring non-use values are contributions to charitable organizations, calculations of donated time, and the like, which indicate the economic resources some humans are willing to

Specifically, "CV involves a series of interviews with individuals for the purpose of ascertaining the values they respectively attach to particular changes in particular resources."[79] While some have expressed criticism that CV studies can result in overestimation of damages and speculative or egregious outcomes,[80] the *Ohio v. DOI* court made clear its unwillingness to judicially overrule "DOI's careful estimate of the caliber and worth of CV methodology."[81]

Contingent valuation studies do have several important substantive weaknesses, which have been discussed in detail by numerous scholars. Highly susceptible to bias, overestimation of how much money people would spend to preserve a resource, question sequence effects, "pair" effects, and insensitivity to quantity, CV can result in implausibly high valuations.[82] There are procedural difficulties as well. For example, the applicable facts may change during preparation of a CV study, forcing the trustee to choose between proceeding with the development of an

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expend on non-economic benefits. This market-based analysis may provide more predictable results than a CV study, but will probably also result in dramatic undervaluation of non-use value due to the transaction costs and injection of other issues into the valuation question. However, because of their conservative nature, market indicators of non-use value may provide trustees with strong, and cheaply obtained, data on non-use value for inclusion in NRDAs.

[79] *Id.* For a short critique of CV techniques, see Richard H. Pildes & Cass R. Sunstein, *Reinventing the Regulatory State*, 62 U. Chi. L. Rev. 1, 76–83 (1995) (discussing whether CV or other alternatives are adequate surrogates for willingness to pay).

[80] *See Ohio v. DOI*, 880 F.2d at 475–76; *see also* Cass R. Sunstein, *Coherent and Incoherent Valuation: A Problem with Contingent Valuation of Cultural Amenities* 1 (Feb. 2002) (preliminary draft Sep. 25, 2001) (arguing that the problem with contingent valuation is category-bound thinking: "[w]hen people explore particular problems in isolation, they normalize them by comparing them to a cognitively accessible comparison set, consisting of cases from the same basic category"), *at* http://culturalpolicy.uchicago.edu/workingpapers/Sunstein12.pdf.

[81] 880 F.2d at 478.

[82] *See* James Peck, Comment, *Measuring Justice for Nature: Issues in Evaluating and Litigating Natural Resources Damages*, 14 J. Land Use & Envtl. L. 275, 284 (1999) ("Critics of the method argue that the method is hypothetical and generates unreliable damage estimates, produces results that cannot be independently validated, determines value from persons lacking sufficient information to be estimating value, and is not consistent with principles of valuation that are basic to the economics profession.") (citations omitted); Note, *"Ask a Silly Question . . .": Contingent Valuation of Natural Resource Damages*, 105 Harv. L. Rev. 1981, 1984–89 (1992) (discussing the unreliability of contingent valuation for non-use values). *See generally* Peter A. Diamond & Jerry A. Hausman, *Contingent Valuation: Is Some Number Better than No Number?*, 8 J. Econ. Persp. 45 (1994); Daniel Kahneman & Ilana Ritov, *Determinants of Stated Willingness to Pay for Public Goods: A Study in the Headline Model*, 9 J. Risk & Uncertainty 5 (1994).

outdated study, or beginning the study once the facts are fully developed but risking critical delay in obtaining the results.[83]

Because it is so difficult to calculate non-use values, it should not be surprising that many trustees are reluctant to incorporate lost non-use values into natural resource damage assessments.[84] Another factor that may discourage trustees from considering non-use values is that natural resources historically have been defined in terms of use. Nevertheless, a strictly use-based approach does not sufficiently capture nature's full value.[85] "The fundamental problem of damage valuation for the per se loss of wildlife is that the intrinsic worth of natural resources does not conveniently fit the terms of economic accountability."[86] Including non-use values in NRDAs strikes a balance between the purely economic view of the value of natural resources and more controversial notions such as assessing damages for animal suffering caused by pollution.[87]

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[83] *See* Dale B. Thompson, *Valuing the Environment: Courts' Struggles with Natural Resource Damages*, 32 ENVTL. L. 57, 85 (2002).

> Therefore, trustees could face an unappealing choice, either proceed with the development of an original CVM study and face the possibility that new information will make the expensive study irrelevant, or choose to wait until the facts are more fully developed. However, requirements for speedy trials combined with the lengthy process of developing an original CVM study . . . could mean that the results would not be available in time for trial.

Id.

[84] *See id.*

[85] Many view their freedom from environmental risk and the protection of pristine areas not as a function of use, "but for their beauty or their independence from human artifice," and "[t]he emphasis in law on 'use value' inadequately captures the way they value the relevant goods." Sunstein, *supra* note 17, at 839. "In environmental law, the major issue of contestation is frequently the appropriate kind of valuation of environmental amenities; if beaches, species, and mountains were valued solely for their use, we would not be able to understand them in the way that we now do." *Id.* at 860; *see also* Gregory G. Garre, *Environmental Law: CERCLA, Natural Resource Damage Assessments, and the D.C. Circuit's Review of Agency Statutory Interpretations under* Chevron, 58 GEO. WASH. L. REV. 932, 940 (1990) ("The diminution in use value standard for calculating natural resource damages is criticized on the ground that 'it ignores the reality that natural resources may have worth beyond their use by humans' and thus undervalues natural resource damages." (citations omitted)).

[86] ZYGMUNT J.B. PLATER ET AL., ENVIRONMENTAL LAW AND POLICY: NATURE, LAW, AND SOCIETY 189 (3d ed. 2004); *see also* Cross, *supra* note 17, at 270 ("Placing an economic value on natural resources is not just an academic exercise.").

[87] But perhaps expanding the notion of non-use value is appropriate. *See, e.g.*, Cass R. Sunstein, *The Rights of Animals*, 70 U. CHI. L. REV. 387, 394 (2003) (stating that balancing human versus animal interests must depend on values—"on how much weight we should assign to the relevant interests," and suggesting at the very least that "suffering and harms to animals should count"); J. Baird Callicott, *Non-Anthropocentric Value Theory and Environmental Ethics*, 21 AM. PHIL. Q. 299, 300 (1984) (stating that nature must have some value even when

B. *The Benefits of Assessing Damages for Lost Non-Use Values*

Assessing damages for lost non-use values can bestow many benefits upon communities affected by pollution. The additional funds procured can be used as a "reserve" fund in the (very likely) event that the actual cost of restoration or replacement exceeds the amount calculated and received from the perpetrator for remediation.[88] Moreover, assessing additional liability for injury to special resources will require potential polluters to exercise extra caution with assets that are important to the public, and will help protect such resources. Finally, the assessment of damages for lost non-use values recognizes the loss of a resource that may be central to the identity of a community and the insult caused by a polluter who failed to exercise due care for the communities it affected.[89]

The consideration of non-use values is optional for many trustees.[90] Those trustees that are not bound by the odd strictures of the DOI regulations should seriously consider calculating lost non-use values in each case they handle. Although the costs of calculating damages may sometimes outweigh the benefits of collecting such damages, in cases where calculation of the lost non-use values is warranted, the imposition of liability for such losses can have several different levels of utility.[91] Situations in which it is especially worthwhile

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humans fail to recognize it). "Does wildlife, for example, have no value beyond that to humans, or is wildlife worthwhile—even sacred—on its own terms?" Cross, *supra* note 17, at 290. An obligation to pay such damages is not unforeseeable considering that the goals of CERCLA are deterrence and complete restoration. One criticism could be that, at some point, it is wasteful to make people pay for restoration or for the interests of other living things when use is much lower. But DOI would be free to develop a limitation to prevent "grossly disproportionate" assessments of non-use values as compared to use values. *See* V. Scott Bailey, Note, *Changes in Natural Resources Damage Assessment Procedures: The Department of Interior's Response to* Ohio v. United States Department of the Interior, 1 ENVTL. LAW. 315, 319 (1994) ("The court gave DOI latitude to create exceptions to the restoration cost preference if restoration is infeasible or if restoration costs are grossly disproportionate to use value."); *see also* 132 CONG. REC. 29,767 (1986) ("Where, of course, restoration is technically impossible or the costs thereof are grossly disproportionate to the value of the resources to society as a whole, then other valuation measures, both market and nonmarket, must be used.").

[88] *See* Ohio v. U.S. Dep't of the Interior, 880 F.2d 432, 444–45 (D.C. Cir. 1989) ("It would be odd indeed for a Congress so insistent that all damages be spent on restoration to allow a 'lesser' measure of damages than the cost of restoration . . . .").

[89] *See generally* Bisulca, *supra* note 2 (noting the cultural, physical, and spiritual relationship of Penobscot Nation to the Penobscot River and the disrespect shown to them in the polluting of the river).

[90] *See* 43 C.F.R. § 11.10 (2004); *see also supra* note 28 and accompanying text.

[91] *See* Note, *supra* note 82, at 1993 ("CV should be used only if the costs of excluding nonuse values outweigh the costs generated by CV itself.").

to consider non-use values include those where: the likelihood of litigation remains low;[92] some market indicator of non-use value is available;[93] a previously completed contingent valuation study related to a similar resource already exists;[94] or the resource is unique, well-known, or has suffered long-term or irreversible damage.[95]

Trustees should err in favor of calculating non-use values because, as Congress recognized when it passed CERCLA, humans—through ignorance or indifference—often fail to acknowledge much of nature's intrinsic value.[96] These damages, in addition to paying for restoration and creating other benefits discussed below, would help advance CERCLA's primary goals of deterrence and environmental protection.[97]

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[92] Trustees must assess the increased probability that adding non-use values may subvert the out-of-court process, thereby imposing "obstacles to the achievement of an important goal of CERCLA—the preference that recovery of natural resource damages be achieved through settlement rather than by a court." Thompson, *supra* note 83, at 85–86. "Settlement discussions may [also] be hindered by uncertainty about the amount of non-use value damages trustees will seek." *Id.* at 86. That said, few CERCLA cases go to trial. *See* Office of Envtl. Guidance, U.S. Dep't of Energy, Integrating Natural Resource Damage Assessment and Environmental Restoration Activities at DOE Facilities 11 (Oct. 1993) ("The rebuttable presumption is, however, primarily of importance in the event of litigation. Few natural resource damages cases have, in fact, actually been tried, with most being settled out of court." (endnote omitted)), *available at* http://www.eh.doe.gov/oepa/guidance/CERCLA/nrda3.pdf.

[93] *See Ohio v. DOI*, 880 F.2d at 475; *see also supra* text accompanying note 78.

[94] Such parallel studies may be needed if the trustees lack the funds necessary to develop their own CV studies.

[95] Note, *supra* note 82, at 1995 & n.95; *see also* John V. Krutilla, *Conservation Reconsidered*, 57 Am. Econ. Rev. 777, 778–80 (1967). *See generally* A. Myrick Freeman III, *Nonuse Values in Natural Resource Damage Assessment*, *in* Valuing Natural Assets: The Economics of Natural Resource Damage Assessment 264, 299–300 (Raymond J. Kopp & V. Kerry Smith eds., 1993).

[96] *Ohio v. DOI*, 880 F.2d at 457.

[97] Restoration might include any non-use or intrinsic values, and CERCLA may envision a broader construction of restoration in natural resource damage assessments. After all, a primary goal of CERCLA was to make whole the natural resources that suffer injury. As a result, restoration, and its costs, may be justified even when restoration costs outrun willingness to pay. This suggestion is not so outrageous if one remembers that CERCLA is a statute designed to deter future release of hazardous pollutants into the environment. If restoration costs must be paid, even if extremely high, this can further the goals of deterrence and environmental protection. After all, restoration is the proper basic valuation measure. *See id.* at 446. In support of using restoration as the sole remedy for publicly-owned natural resources, see, for example, Heidi Wendel, Note, *Restoration as the Economically Efficient Remedy for Damage to Publicly Owned Natural Resources*, 91 Colum. L. Rev. 430 (1991) (advocating restoration as the only efficient remedy that will compensate the public fully for its loss). *See also* Frank B. Cross, *Restoring Restoration for Natural Resource Damages*, 24 U. Tol. L. Rev. 319, 321 (1993) (arguing that restoration provides optimal preservation as a low cost "selective process that uses the power of natural forces to recreate a better functioning ecosystem").

Assessment of damages for non-use values is unlikely to lead to "excessive precautions" on the part of economic players and potential polluters.[98] CERCLA liability is so disastrous for polluters that firms and individuals already engage in economically inefficient behaviors in order to avoid such liability. An additional calculation in conducting NRDAs is unlikely to cause a marked increase in economically inefficient behaviors. To the contrary, inclusion of non-use values in NRDAs will facilitate economically efficient activity in the restoration and replacement of lost natural resources because the necessary restoration funds will be available.[99]

Conclusion

No argument can be made that it is easy to calculate non-use values. But many trustees have wide discretion in deciding both whether to follow the DOI regulations and whether to consider non-use values in damage determinations. As the vignette of the Penobscot River illustrates, the injury caused by pollution is multifaceted. Where warranted, there are multiple benefits to charging polluters for damages beyond the simple repair of the physical problem they caused. The inclusion of non-use values would help promote accountability and deterrence, and ensure that the human interests negatively affected by pollution are adequately addressed.

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[98] *But see* Note, *supra* note 82, at 1990–91 (citing Richard A. Posner, Economic Analysis of Law 176 (3d ed. 1986)).

[99] *See Ohio v. DOI*, 880 F.2d at 445 (stating that DOI's regulations were not in line with Congress's intention for recovery to be sufficient to cover the costs of restoration).